Cutaneous Collagenous Vasculopathy

BOBBI GEORGIA BRADY, MD; MELANIE ORTLEB, MD; ALAN S. BOYD, MD; JENNIFER POWERS, MD
Vanderbilt University

ABSTRACT

Cutaneous collagenous vasculopathy is a rare microangiopathy of dermal blood vessels. Clinically indistinguishable from generalized essential telangiectasia, this condition is diagnosed by its unique histological appearance. In contrast to other primary telangiectatic processes, cutaneous collagenous vasculopathy has dilated vascular structures that contain deposits of eosinophilic hyaline material within the vessel walls. To date, cutaneous collagenous vasculopathy has been described in a total of 19 cases in the medical literature. The first several cases were described exclusively in middle-aged to elderly men. Though it has now been described in both men and women, cutaneous collagenous vasculopathy is still most often described in middle-aged to older adults. No particular disease or medication has been linked to the development of cutaneous collagenous vasculopathy, and the etiology remains unknown. In this case series, the authors present three additional patients diagnosed with cutaneous collagenous vasculopathy and discuss their clinical and histopathologic features. (*J Clin Aesthet Dermatol.* 2015;8(11):49–52.)

Cutaneous collagenous vasculopathy (CCV) is a rare, idiopathic microangiopathy first reported in 2000 by Salama and Rosenthal.[1] CCV has characteristic microscopic findings, including dilated capillaries and post-capillary venules with marked collagen deposition,[2] which are features essential to diagnosis. Clinically, CCV presents as blanchable, non-urticating macules that typically begin on the lower extremities and then spread to the trunk and upper extremities.[1,3–6] Due to its clinical similarity to generalized essential telangiectasia (GET), dermatologists may not biopsy these patients, potentially causing CCV to be underdiagnosed and under-reported.[4,5,7,8] To date, CCV has been described in approximately equal numbers in men and women of Caucasian race with patients ranging from 16 to 83 years of age.[4,9] The majority of cases have been diagnosed in patients with other concomitant diseases, most commonly hypertension and cardiovascular disease,[3,5,6,9,10] but also in patients with autoimmune conditions[2,5,8,9] and diabetes mellitus.[5,10] Additionally, in most described cases, patients were taking at least one medication on an intermittent or ongoing basis.[1,2,4–7,9,10] Despite this observation, specific medical conditions or medications are yet to be linked to the development of CCV. In this article, the authors present three female patients who have been diagnosed with CCV along with their clinical and histopathological features.

CASE 1

A 42-year-old woman presented for evaluation of a telangiectatic eruption on her lower extremities after failing to respond to sclerotherapy. The telangiectasias had been present for approximately 10 years and had progressed to cover larger areas. She stated that the left medial calf hurt intermittently during this period, but the pain had not progressed over time. No other therapies had been attempted. Her past medical history was significant for systemic lupus erythematosus, hypothyroidism with goiter, and Sjogren's syndrome. Additionally, the patient suffered from chronic allergic rhinitis. Her medications included levothyroxine, multivitamins, and ibuprofen as needed. She denied a history of liver disease or exogenous estrogen use. The patient had no known allergies.

On examination, the patient had diffuse, blanching, erythematous patches on both lower extremities most prominent around her knees and ankles (Figure 1). Additionally, she had fine caliber erythematous, feathery, linear vessels extending to the knee and lower thighs consistent with telangiectasias. On her chest and knees, there were multiple depigmented macules and patches consistent with vitiligo. A biopsy taken from the left foot showed slightly dilated blood vessels with mural thickening, which was periodic acid–Schiff (PAS) positive, consistent with cutaneous collagenous vasculopathy. A biopsy taken for direct immunofluorescence was negative.

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ADDRESS CORRESPONDENCE TO: Bobbi Georgia Brady, MD; E-mail: Bobbibradymd@gmail.com

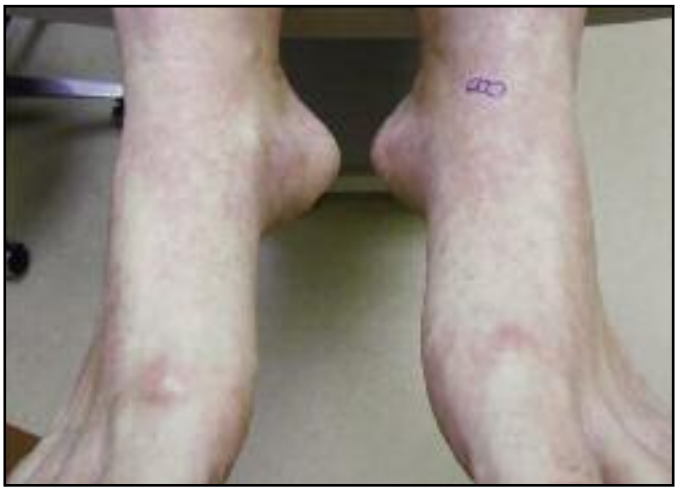

Figure 1. Patient 1: Blanching erythematous patches most prominent around the ankles

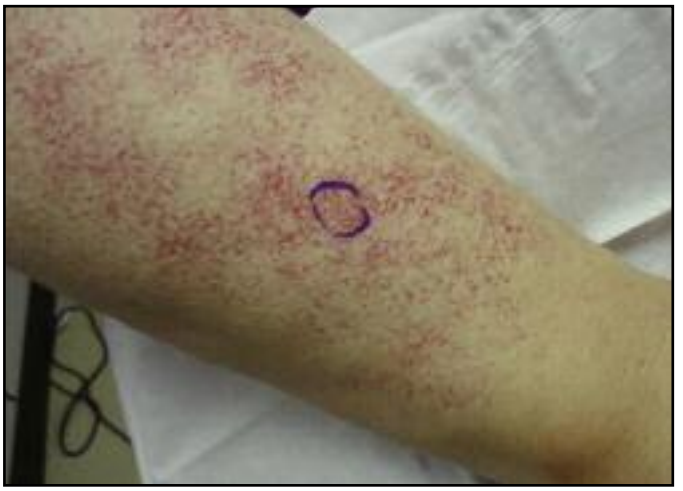

Figure 2. Patient 2: Biopsy site on right forearm with numerous, non-resolving telangiectatic vessels

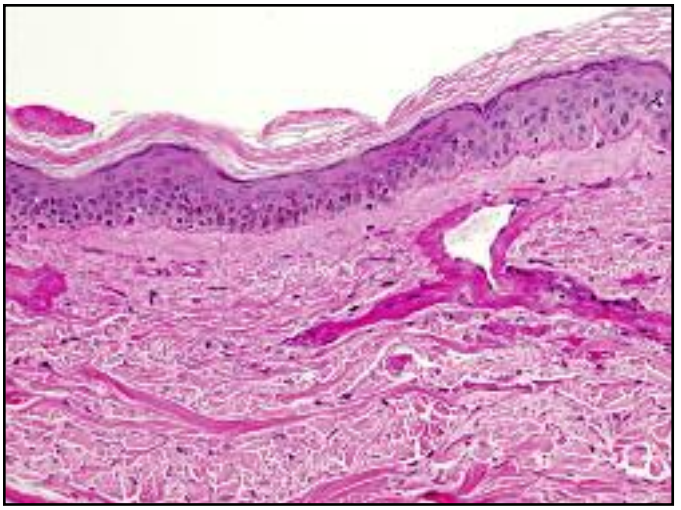

Figure 3. Patient 2: Right forearm punch biopsy, H&E stain, revealing dilated vascular structures and thickened vessel walls

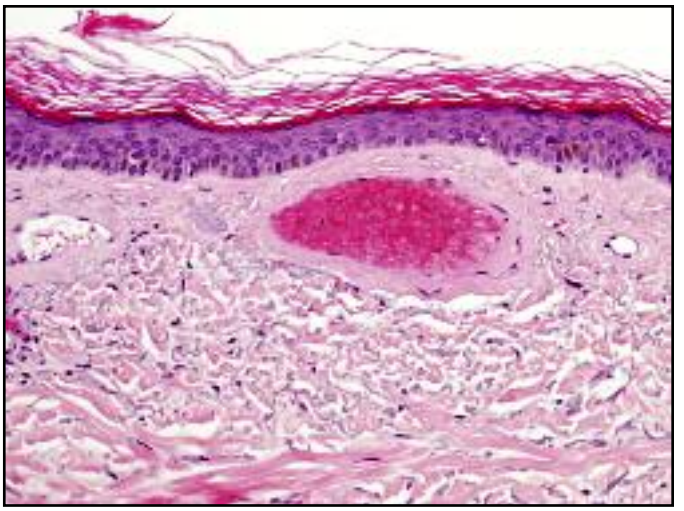

Figure 4. Patient 2: Right forearm punch biopsy, PAS-positive staining of amorphous material deposited within blood vessel walls consistent with cutaneous collagenous vasculopathy

CASE 2

A 51-year-old Caucasian woman presented with a complaint of a three-year asymptomatic eruption on the forearms and medial thighs (Figure 2). She had a past medical history of obesity, hypertension, hyperlipidemia, and endometrial carcinoma. Her medications included atorvastatin, ramipril, alprazolam, bupropion, lutein, multivitamins, baby aspirin, and ibuprofen as needed.

On examination, the patient had numerous telangiectatic vessels on her bilateral forearms and medial thighs. Darier's sign was negative. Biopsy from the right arm revealed dilated vascular structures with thickened walls (Figure 3). The blood vessel walls contained a PAS-positive amorphous material deposited within them consistent with cutaneous collagenous vasculopathy (Figure 4).

CASE 3

A 47-year-old Caucasian woman presented for evaluation of pink patches on her arms and legs (Figures 5 and 6). She reported a 10- to 15-year history of discoloration that she first noted on her ankles, which subsequently spread to her legs. She noted redness of her eyes as well. She denied any pain or pruritus. Her past medical history was significant for rosacea/ocular rosacea and hypertension. The patient's medications included saxagliptin/metformin, lisinopril, pravastatin, zantac, and fenofibrate.

Physical examination revealed bilateral dorsal forearms, buttocks, and lower legs with diffuse, reticulate and confluent, partially blanching purpuric patches more reddish-colored on the arms and more violaceous on the lower extremities. The bulbar conjunctiva showed telangiectasias bilaterally as well. A biopsy from the foot revealed blood vessels in the papillary dermis with dilatation (Figure 7) and the presence of PAS-positive aggregates of material in the vessel walls consistent with

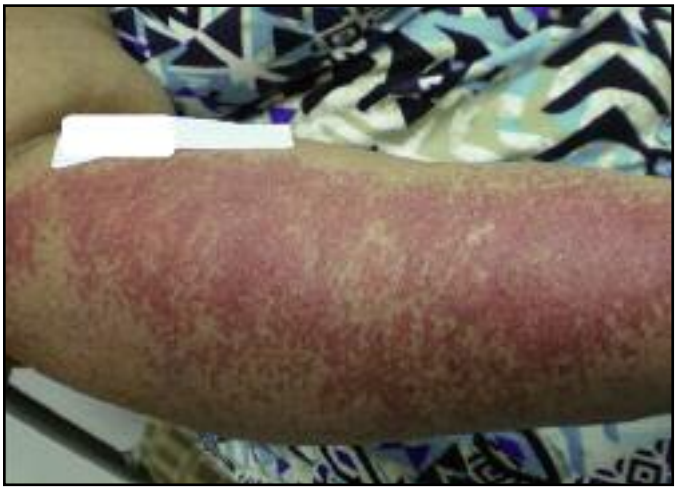

Figure 5. Patient 3: Right forearm with clinical findings of a large semi-reticulated, partially blanching erythematous patch

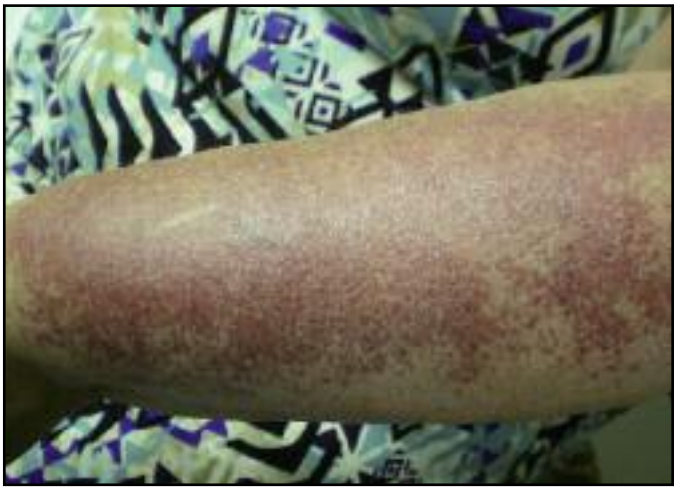

Figure 6. Patient 3: Left forearm with a similar appearing, more confluent red-brown patch

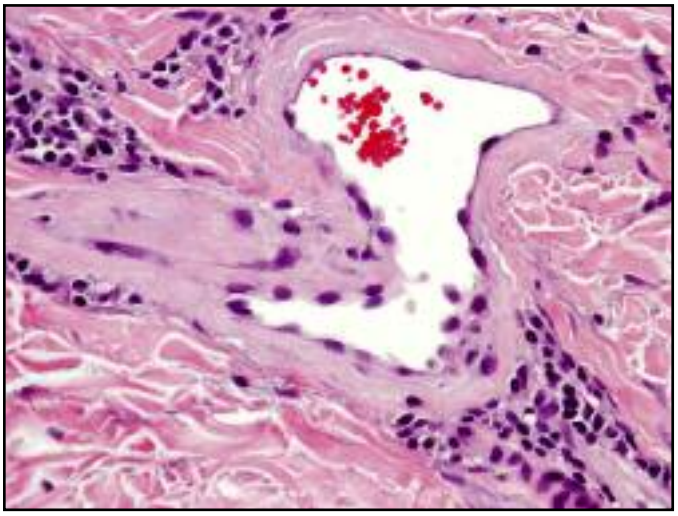

Figure 7. Patient 3: Right foot punch biopsy, H&E stain, revealing dilated blood vessels in the papillary dermis

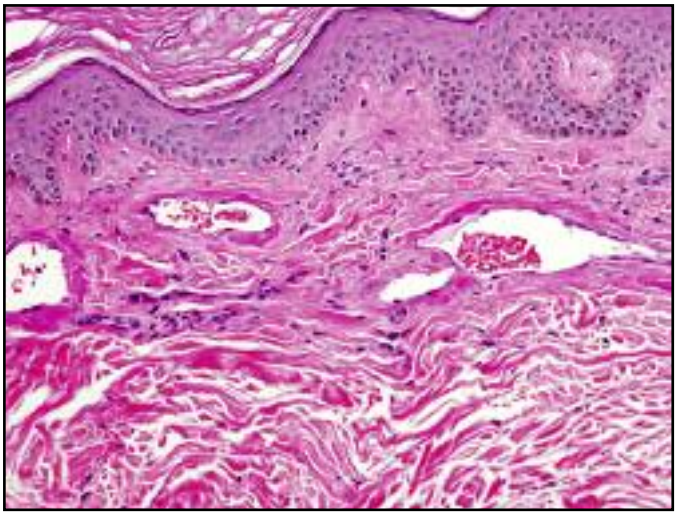

Figure 8. Patient 3: Right foot punch biopsy, PAS-positive aggregates within the vessel walls consistent with cutaneous collagenous vasculopathy

cutaneous collagenous vasculopathy (Figure 8). Direct immunofluorescence study was negative.

DISCUSSION

Cutaneous collagenous vasculopathy is a recently described primary vascular disorder that involves the development of idiopathic telangiectasias.[11] Other primary vascular disorders in the differential diagnosis of CCV include hereditary hemorrhagic telangiectasia (HHT), hereditary benign telangiectasia (HBT), and generalized essential telangiectasia (GET).[9] Though each of these diagnoses has some clinical aspects that overlap with CCV, there are key features that differentiate the conditions. Contrary to patients with HHT, patients diagnosed with CCV do not have mucosal involvement or a family history of a similar telangiectatic process or abnormal bleeding.[10] HBT is an autosomal dominant disorder[9] where patients develop telangiectatic lesions between one year of age and adolescence.[11] Similar to GET, patients with CCV generally note their eruption initially appears on the bilateral legs and spread to other areas in late adulthood.[5] Clinically, the only aspect of GET differentiating patients with these two conditions is the occasional mucosal involvement,[11] making a biopsy mandatory for definitive diagnosis. Thus far, no patients with CCV have been reported to have nail, mucosal, or systemic involvement.

The histopathology of CCV shows dilated superficial cutaneous vessels with marked collagen deposition, which is PAS diastase positive.[6,12] The hyalinized vessel walls can be highlighted with immunohistochemical stains for collagen IV.[4] Luse bodies and veil cells have also been reported.[2] In contrast, the histopathological specimens of GET demonstrate either mild ectasia of thin-walled capillaries.[5] Since CCV is still a relatively new and rarely

reported disorder it may be missed in the absence of biopsy.[9]

Patients diagnosed with CCV typically have other concomitant medical and/or psychological conditions requiring them to take medication on an ongoing or intermittent basis.[1–6,8–14] Each of the three patients the authors report has comorbid medical disorders ranging from cardiovascular disease to extensive autoimmune disease to extensive medication lists. Despite this fact, there remain no clear associations between other disease processes or medication usage and the development of CCV. The underlying pathophysiology for the development of these telangiectasias is unclear and the etiology is unknown. One proposed mechanism for the development of CCV is that it may be a repair process due to the finding of veil cells, Luse bodies, and sparsity of pericytes[2,15] though this hypothesis has not been confirmed.

Most patients with CCV have telangiectasias, which are asymptomatic and restricted to the skin. Word et al[8] reported a patient to have paresthesias and Raynaud's phenomenon associated with their lesions, suggesting this may represent nerve damage secondary to dilation of the deeper vasculature. Patient 1 of the current report experienced intermittent pain of the calf associated with the development of her CCV eruption, indicating that CCV may affect vessels more extensively than previously believed. Though no CCV patients have yet been reported to have mucosal involvement, Patient 3 of the current report noted redness of the bulbar conjunctiva developing within the same time period of her initial CCV lesions. She has been presumptively diagnosed with ocular rosacea, which would account for the appearance of these vessels, but it is possible that this may in fact be a manifestation of CCV that has not yet been described.

One of the authors' patients failed to respond to traditional sclerotherapy treatments of her telangiectasias, but other patients have been treated with a pulsed dye laser[11] or intense pulsed light therapy[8] with some success. Patients diagnosed with CCV may be considered for laser therapy as a potential treatment and future study.

REFERENCES

1. Salama S, Rosenthal D. Cuteous collagenous vasculopathy with generalized telangiectasia: an immunohistochemical and ultrastructural study. *J Cutan Pathol*. 2000;27:40–48.
2. Perez A, Wain ME, Robson A, et al. Cutaneous collagenous vasculopathy with generalized telangiectasia in two female patients. *J Am Acad Dermatol.* 2010;63:882–885.
3. Kanitakis J, Faisant M, Wagschal D, et al. Cutaneous collagenous vasculopathy: ultrastructural and immunohistochemical study of a new case. *Am J Clin Dermatol.* 2010;11:63–66.
4. Lloyd BM, Pruden SJ 2nd, Lind AC, et al. Cutaneous collagenous vasculopathy: report of the first pediatric case. *Pediatr Dermatol.* 2011;28:598–599.
5. Davis TL, Mandal RV, Bevona C. Collagenous vasculopathy: a report of three cases. *J Cutan Pathol.* 2008;35:967–970.
6. Monteagudo B, Pérez-Valcárcel J, Ramírez-Santos A, et al. Cutaneous collagenous vasculopathy: a case report and review of the literature. *Actas Dermosifiliogr.* 2010;101:444–447.
7. Kanitakis J. Cutanous collagenous vasculopathy. *J Am Acad Dermatol.* 2011;64:1179–1180.
8. Word AP, Jackson ML, Costner M, et al. Telangiectases of the distal lower extremities associated with paresthesia and Raynaud phenomenon. *JAMA Dermatol.* 2013;149:97–102.
9. González Fernández D, Gómez Bernal S, Vivanco Allende B, et al. Cutaneous collagenous vasculopathy: description of two new cases in elderly women and review of the literature. *Dermatology*. 2012;225:1–8.
10. Burdick LM, Lohser S, Somach SC, et al. Cutaneous collagenous vasculopathy: a rare cutaneous microangiopathy. *J Cutan Pathol.* 2012;39:741–746.
11. Echeverría B, Sanmartín O, Botella-Estrada R, et al. Cutaneous collagenous vasculopathy successfully treated with pulsed dye laser. *Int J Dermatol.* 2012;51:1359–1362.
12. Bernard S, Cawet B, Theate Y, et al. Cutaous collagenous vasculopathy: a rare cause of generalized telangiectasia. *Ann Dermatol Venereol.* 2012;139:381–386.
13. Bardazzi F, Virdi A, Odorici G, et al. Cutaneous collagenous vasculopathy: report of a case. *Clin Exp Dermatol.* 2014;39:228–230.
14. Salama S, Chorneyko K, Belovic B. Cutaneous collagenous vasculopathy associated with intravascular occlusive fibrin thrombi. *J Cutan Pathol*. 2014;41:386–393.
15. Salama S. Cutaneous collagenous vasculopathy. *J Cutan Pathol.* 2013;40:524.